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10/506,344	09/01/2004	Tamer Shanableh	CM00880P	1089

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EXAMINER	
ROBERTS, JESSICA M	

ART UNIT	PAPER NUMBER
2621	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/506,344	SHANABLEH, TAMER	
	Examiner	Art Unit	
	Jessica Roberts	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-10 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1, 3-8 is/are rejected.

7)☒ Claim(s) 2, 6/2, 7/2, 8/2, 9-10 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 09/01/2004.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1,5- 6, and 9-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Claim 1 is indefinite because it is not clear if the scalable video object plane enhancement layer transmission is an MPEG-4 scalable video object plane enhancement layer transmission, or the scalable video object plane enhancement layer transmission is similar to that of an MPEG-4 scalable video object plane enhancement layer transmission. For purposes of applying prior art, the examiner takes the position that the scalable video object plane enhancement layer transmission is an MPEG-4 scalable video object plane enhancement layer transmission.

4. Claim 5 is indefinite because it is not clear if the scalable video object plane enhancement layer transmission is an MPEG-4 scalable video object plane enhancement layer transmission, or the scalable video object plane enhancement layer transmission is similar to that of an MPEG-4 scalable video object plane enhancement layer transmission. For purposes of applying prior art, the examiner takes the position that the scalable video object plane enhancement layer transmission is an MPEG-4 scalable video object plane enhancement layer transmission.

5. Claim 6 is indefinite because the communication unit as recited in claim 6 which depends on any of claims 1 to 4 or 5; the method steps of claims 1 to 4 do not require the use of an encoder as currently claimed. However, the communication unit depending upon claim 5 would include an encoder.

6. Claim 7 is indefinite because the communication unit as recited in claim 7 which depends on any of claims 1 to 4 or claim 5; the method steps of claim 1 to 4 do not require the use of an encoder. However, the communication unit depending upon claim 5 would include an encoder.

Claim Objections

7. Claims 9-10 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent should refer to other claims in the alternative only, and cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims 9-10 have not been further treated on the merits.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claims 1, 3-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang et al., US-2002/0021761 A1 and in view of Suzuki et al., US-6, 535,558.

11. Regarding **claim 1**, Zhang teaches A method (800) for improving a quality of a scalable video object plane enhancement layer transmission over an error-prone network, the enhancement layer transmission including at least one re-synchronisation marker followed by a Video Packet Header and header extensions, the method comprising the steps of: replicating a reference VOPs' identifier from a video object plane header into a number of enhancement layer header extensions (715) ([0029], [0055]); recovering (830, 840, 850, 860) from an error corrupting said reference VOPs' identifier by decoding a correct reference VOPs' identifier from subsequent .enhancement layer header extensions ([0031], [0072]) Zhang discloses a video coding scheme adds error resilience to the enhancement layer to improve its robustness. In addition to the existing start codes associated with headers of each video-of-plane (VOP) and each bit plane, more unique resynchronization marks are inserted into the enhancement layer bitstream which partition the enhancement layer bitstream into more small video packets. With the addition of many resynchronization marks within each frame of video data, the decoder can recover very quickly and with minimal data loss in the event of a packet loss or channel error in the received enhancement layer bitstream ([0029]. Zhang is silent in regards to identifying (870, 880) correct reference video

object planes to be used in a reconstruction of an enhancement layer video object plane in the scalable video transmission; wherein the scalable video object plane enhancement layer transmission is an MPEG-4 scalable video object plane enhancement layer transmission, or similar, and the reference VOP's identifier is a 'ref select code' field.

12. However, Suzuki teaches identifying (870, 880) correct reference video object planes to be used in a reconstruction of an enhancement layer video object plane in the scalable video transmission.

Suzuki discloses using a flag specifying which layer picture other than the same layer has been used for generating the prediction reference picture is set, encoded and transmitted for each scalable layer. This flag is the identifier (ref_layer_id) of the syntax. Further , Suzuki discloses a flag specifying from which layer the forward prediction or backward prediction is to be made is set, encoded and transmitted on the basis of the flag (ref_layer_id), and the this flag is the identifier (ref_select_code) (column 21 line 8-21. The combination of Zhang of Suzuki as a whole teaches the limitations as claimed, further it is clear to the examiner that if correction has been performed, clearly identifying the correct identifier would have been done before correction can take place with the selec_ref_code); wherein the scalable video object plane enhancement layer transmission is an MPEG-4 scalable video object plane enhancement layer transmission, or similar, and the reference VOP's identifier is a 'ref select code' field (column 21 line 17-20 and fig. 10-11).

13. Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Zhang with the teachings of Suzuki for providing a picture signal encoding method and apparatus, a picture signal decoding method and apparatus and a recording medium whereby it is possible to improve the prediction and encoding efficiency in the spatial scalable encoding system (column 8 line 65 to column 9 line 3).

14. Regarding **claim 3,** Zhang teaches The method for improving a quality of a scalable video object plane enhancement layer transmission over an error-prone network according to Claim 1, wherein the step of recovering includes the steps of: buffering (860) video object plane enhancement layer transmission bits, until a video object plane enhancement layer header extensions is decoded, when an error has occurred in the reference VOPs' identifier (Zhang discloses the enhancement layer encoder add a VOP header to each VOP segment. The VOP header includes a start code for each VOP, which also functions as a synchronization marker, and frame information. As noted above, this frame information may be copied into the BP heard and VP header ([0103]). Zhang continues to teach the encoded base and enhancement layer bitstreams can be stored in the compressed format in the video storage and/or transmitted from sever over the network to the client ([0104] and fig. 11). Zhang discloses including start codes and resynchronization markers in the VOP, and the resynchronization markers are used by the decoder when there is an error present to seek forward in the bitstream for the next known resynchronization marker and when found, the decoder is able to begin decoding the next video packet ([0030] which reads

upon the claimed limitation). Zhang in silent in regards to correcting (870) said reference VOP's identifier in response to a reference VOPs' identifier extracted from said decoded header extensions.

15. However, Suzuki discloses the use of a flag specifying from which layer the forward prediction or backward prediction is to be made is set, encoded and transmitted on the base of the flag (ref_layer_id), and the this flag is the identifier (ref_select_code) (column 21 line 11-22). Since Suzuki discloses using flags to specify forward and backward prediction with the use of the ref_layer_id and ref_select_code and Zhang discloses the decoder is enabled to detect and recover when the enhancement bitstream is corrupted by channel error [0072], it is clear to the examiner that in order to detect and recover from channel error, the decoder would extract and correct the enhancement layer based on the identifier.

16. Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Zhang with the teachings of Suzuki for providing a picture signal encoding method and apparatus, a picture signal decoding method and apparatus and a recording medium whereby it is possible to improve the prediction and encoding efficiency in the spatial scalable encoding system (column 8 line 65 to column 9 line 3).

17. Regarding **claim 4,** Zhang is silent in regards to The method for improving a quality of a scalable video object plane enhancement layer transmission over an error-prone network according to Claim 1, further comprising the step of: selecting (870, 880)

a correct reference VOP's identifier to decode subsequent enhancement layer transmissions.

18. Zhang discloses a video coding scheme adds error resilience to the enhancement layer to improve its robustness. In addition to the existing start codes associated with headers of each video-of-plane (VOP) and each bit plane, more unique resynchronzation marks are inserted into the enhancement layer bitstream which partition the enhancement layer bitstream into more small video packets. With the addition of many resynchronization marks within each frame of video data, the decoder can recover very quickly and with minimal data loss in the event of a packet loss or channel error in the received enhancement layer bitstream ([0029]).
However, Suzuki discloses using a flag specifying which layer picture other than the same layer has been used for generating the prediction reference picture is set, encoded and transmitted for each scalable layer. This flag is the identifier (ref_layer_id) of the syntax . Further , Suzuki discloses a flag specifying from which layer the forward prediction or backward prediction is to be made is set, encoded and transmitted on the basis of the flag (ref_layer_id), and the this flag is the identifier (ref_select_code) (column 21 line 8-21).

19. The combination of Zhang of Suzuki as a whole teaches the limitations as claimed, further it is clear to the examiner that if correction has been performed, clearly selecting the correct identifier would have been done before correction can take place with the selec_ref_code.

20. Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Zhang with the teachings of Suzuki for providing a picture signal encoding method and apparatus, a picture signal decoding method and apparatus and a recording medium whereby it is possible to improve the prediction and encoding efficiency in the spatial scalable encoding system (column 8 line 65 to column 9 line 3).

21. Regarding **claim 5,** Zhang teaches video encoder (615) comprising: a processor for encoding a scalable video sequence having a plurality of enhancement layers ([0052] and fig. 4), wherein the enhancement layer transmission includes at least one re-synchronisation marker followed by Video Packet Header and header extensions ([0087] and fig. 8); replicating means for replicating a reference VOP's identifier from a video object plane header into a number of enhancement layer header extensions (715) ([0091]); and a transmitter for transmitting said scalable video sequence containing said one or more reference VOPs' identifier (fig. 4); and a video decoder (625) (fig. 4) comprising: a receiver for receiving said scalable video sequence containing said video object plane enhancement layer header extensions (715) from said video encoder (fig. 4); a detector detecting one or more errors in said reference VOP's identifier in an enhancement layer of said received scalable video sequence(Zhang discloses the enhancement layer is encoded with syntactic and semantic error detection and protection. Further disclosed is that this technique enable the video decoder to detect and recover when the enhancement bitstream is corrupted by channel errors [0072], therefore, it is clear to the examiner that if the decoder is capable of detecting and

recovering from channel errors, the decoder would clearly include a detector for doing such); and a processor operably coupled to said detector for recovering (830, 840, 850, 860) from an error corrupting said reference VOPs' identifier by decoding a correct reference VOP's identifier from subsequent enhancement layer header extensions when said one or more errors is detected (Zhang discloses the client includes a processor, a memory and one or more media output devices. Zhang also discloses the operating system implements a client-side video decoder to decode the base and enhancement bitstream. The client-side decoder has a base layer decoding component and an enhancement layer decoding component [0057] and fig. 4. Further, Zhang discloses the decoder is enabled to detect and recover when the enhancement bitstream is corrupted by channel error [0072]. Therefore it is clear to the examiner that processor and operating system coupled to the decoder are used with detector for detecting and recovering from channel errors, which reads upon the claimed limitation). Zhang is silent regarding identifying (870, 880) correct reference video object planes to be used in a reconstruction of an enhancement layer video object plane in the scalable video transmission; wherein the scalable video object plane enhancement layer transmission is an MPEG-4 scalable video object plane enhancement layer transmission, or similar, and the reference VOPs' identifier is a 'ref_select_code_'field (715).

22. However, Suzuki discloses using a flag specifying which layer picture other than the same layer has been used for generating the prediction reference picture is set, encoded and transmitted for each scalable layer. This flag is the identifier (ref_layer_id) of the syntax . Further , Suzuki discloses a flag specifying from which layer the forward

prediction or backward prediction is to be made is set, encoded and transmitted on the basis of the flag (ref_layer_id), and the this flag is the identifier (ref_select_code) (column 21 line 8-21. The combination of Zhang of Suzuki as a whole teaches the limitations as claimed, further it is clear to the examiner that if correction has been performed, clearly identifying the correct identifier would have been done before correction can take place with the selec_ref_code); wherein the scalable video object plane enhancement layer transmission is an MPEG-4 scalable video object plane enhancement layer transmission, or similar, and the reference VOP's identifier is a 'ref select code' field (column 21 line 17-20 and fig. 10-11).

23. Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Zhang with the teachings of Suzuki for providing a picture signal encoding method and apparatus, a picture signal decoding method and apparatus and a recording medium whereby it is possible to improve the prediction and encoding efficiency in the spatial scalable encoding system (column 8 line 65 to column 9 line 3).

24. Regarding **claim 6,** Zhang teaches A video communication unit (615, 625) adapted for use in the method of any of claims 1 to 4 or adapted for use in the communication system of claim 5 ([0052] and fig. 4).

25. Regarding **claim 7,** Zhang teaches A video encoder (615) adapted for use in the method of any of claims 1 to 4 or adapted for use in the communication system of claim 5 ([0052] and fig. 4).

26. **claim 8,** Zhang teaches A video decoder (625) adapted for use in the method of any of claims 1 to 4 or adapted for use in the communication system of claim 5 ([0052] and fig. 4).

Allowable Subject Matter

27. Claims 2, 6/2, 7/2, and 8/2 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

28. The following is a statement of reasons for the indication of allowable subject matter: The present invention as claimed relates to video transmission systems and video/encoding/decoding techniques, where the video has been compressed using a scalable compression technique for transmission over error prone networks such as wireless and best-effort networks. The novel features include estimating a reference VOPs' identifier when an error has occurred in the reference VOPs' Identifier.

29. The prior art of record fails to anticipate or render obviousness the limitations of the claimed invention where the method for improving a quality of a scalable video object plane enhancement layer transmission over an error prone network wherein the step of recovering includes the steps of estimating a reference VOPs' identifier when an error has occurred in the reference VOPs' identifier; decoding the video object plane enhancement layer transmission until a video object plane enhancement layer header extensions is decoded; and correcting said estimated reference VOPs' identifier in response to a reference VOPs' identifier extracted from said decoded header extensions.

Examiner's Note

The referenced citations made in the rejection(s) above are intended to exemplify areas in the prior art document(s) in which the examiner believed are the most relevant to the claimed subject matter. However, it is incumbent upon the applicant to analyze the prior art document(s) in its/their entirety since other areas of the document(s) may be relied upon at a later time to substantiate examiner's rationale of record. A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. W.L. Gore & associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984). However, "the prior art's mere disclosure of more than one alternative does not constitute a teaching away from any of these alternatives because such disclosure does not criticize, discredit, or otherwise discourage the solution claimed...." In re Fulton, 391 F.3d 1195, 1201, 73 USPQ2d 1141, 1146 (Fed. Cir. 2004).

Conclusion

30. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

31. Wu et al., US- 6, 700,933 SYSTEM AND MEHTOD WITH ADVANCE PREDICTED BIT-PLANE CODING FOR PROGRESSIVE FINE GRANULARITY SCALABLE (PFGS) VIDEO CODING

32. Nemirroff et al., US-6, 724,825 REGENERATION OF PROGRAM CLOCK REFERENCE DATA FOR MPEG TRANSPORT STREAMS

33. Ito et al., US-6, 377,309 IMAGE PROCESSING APPARATUS AND METHOD FOR REPRODUCING AT LEAST AN IMAGE FROM A DIGITAL DATA SEQUENCE

34. Ye et al., US-2004/0086050 A1 CYCLIC RESYNCHRONIZATION MARKER FOR ERROR TOLERATE VIDEO CODING

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jessica Roberts whose telephone number is (571) 270-1821. The examiner can normally be reached on 7:30-5:00 EST Monday-Friday, Alt Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha D. Banks-Harold can be reached on (571) 272-7905. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JMR/
12-20-2007

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